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JORGE CARRASCO
GENERAL MANAGER

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VIA FAX AND U.S. MAIL

Mr. Patrick Wright
Bay/Delta Program Manager
Water Quality Standards Branch, W-3
Water Management Division
Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Dear Mr. Wright:

RE: Water Quality Standards for Surface Waters of the Sacramento River, San Joaquin River, and San Francisco Bay and Delta of the State of California

This letter represents comments on the above-named proposed rule on behalf of the East Bay Municipal Utility District (EBMUD). EBMUD serves drinking water to 1.2 million people in the counties of Alameda and Contra Costa. EBMUD supplies virtually all of its water from Pardee Reservoir on the Mokelumne River, and thus is not a Delta exporter. EBMUD's Board of Directors believes that EBMUD has an obligation to provide reliable, high-quality drinking water for the people of the East Bay, and is committed to preserving and protecting the environment for future generations. EBMUD Policy concerning Bay-Delta protection reads in pertinent part:

San Francisco Bay and the Sacramento-San Joaquin Delta are magnificent and unique natural resources that are important elements of life in California and particularly in the 12 Bay and Delta counties.

During the last two centuries the physical and biological characteristics of these resources have been altered by activities of people, and such activities continue despite significant efforts in recent decades to minimize or mitigate adverse impacts on the Bay and Delta.

EBMUD believes that all public agencies whose actions impact the Bay-Delta environment have a responsibility to consider the effect of their decisions on the Bay and Delta.

New standards have long been needed to secure protection of the Estuary, and EBMUD welcomes the efforts that the Environmental Protection Agency (EPA) has made to develop a new proposal.

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You will be receiving, by separate transmittal, comments on the proposed standard by the California Urban Water Agencies (CUWA). EBMUD is a signatory to that letter, which we view as a significant statement by the urban water agencies of their willingness to work with the EPA to develop protective standards for the Bay and Delta. Urban agencies have two persuasive reasons for supporting strong standards: (1) it is in the agencies' interest as representatives of their customers, who strongly support environmental protection and increasingly demand that agencies obtain their water with the least possible environmental impact; and (2) it is in the agencies' self-interest as water purveyors because as long as the Bay/Delta ecosystem is at risk, so will the agencies' ability to divert water be in jeopardy.

The purpose of these separate comments on the EPA's proposed standards is two-fold: (1) to provide additional recommendations regarding changes in EPA's proposal, and (2) to address several issues pertaining to implementation that EPA should bear in mind to the extent that it becomes involved in the implementation process.

I. Additional Comments on EPA's Proposals

Like CUWA, EBMUD is generally supportive of EPA's estuarine habitat approach, subject to modifications, but has reservations about the approach being taken on the salmon smolt index and striped bass standard. In the following comments, we offer additional ideas for consideration by EPA as it considers revisions to all three criteria.

A. Estuarine Habitat

We approve of EPA's effort to find a single, simple standard to protect several species within the Estuary, rather than separate (and potentially conflicting) standards for each species. We find, as CUWA does, that the position of X2 is a reasonable basis for setting a standard.

CUWA's technical analysis is said to indicate that the number of days that X2 is at or below Roe Island has a weaker relationship to the abundance of many species than does the number of days that X2 is at or below Chipps Island. This analysis is suggestive, but not conclusive. Further review of this issue is needed, particularly given the high water supply impact associated with meeting a Roe Island standard.

We are concerned that EPA's proposed standard, based on four water-year types, sets water quality criteria that are

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substantially more burdensome than is justified by the data for the target period of the late 1960s and early 1970s, especially in the lower flow years within each year type. This is discussed in preliminary comments submitted by the State Water Resources Control Board (State Board) and in a report prepared for the Contra Costa Water District. (Letter of November 15, 1993 from State Board to EPA; Sullivan, G.D., and Denton, R.A., 1994. Report on Clean Water Act X2 Water Quality Standards. Contra Costa Water District, 44 pp.) In addition, we are concerned by EPA's use of 1940-1975 data for setting the standard, when the stated target is the late 1960's and early 1970's. If, as stated, the purpose of using a longer data set was to include a greater range of variability, then why wasn't the 1976-77 drought included?

These concerns could be remedied by using what has been termed a "sliding-scale" approach, or by using more year types (i.e., many more and smaller steps). But in either case, the scale or the steps should accurately fit a regression of the target period's X2-vs.-hydrology data. Several hydrological data sets have been suggested on which to base the standards: the 40-30-30 Sacramento River Index (EPA's proposed approach); a modification of the 40-30-30 Sacramento River Index (EPA); February-June unimpaired runoff (State Board; Sullivan and Denton); February-June unimpaired runoff modified to include carryover storage or January runoff (Sullivan and Denton); output from a DWRSIM study at the 1975 level of development but using the full available period of hydrologic data (State Board). We have not yet reviewed the relative merits of these various data sets, but regardless of which set is used, the adopted standards should reflect conditions in the stated target period.

The support for keeping X2 in Suisun Bay derives in part from the "entrapment zone hypothesis" of biological productivity in the northern reach -- the concept that physical factors associated with the location of the entrapment zone govern the growth and abundance of phytoplankton, which in turn govern the energy flow through pelagic food chains to fish species of concern. (Arthur, J.F. & Melvin, B., 1977. Entrapment of Suspended Materials in the San Francisco Bay-Delta Estuary. United States Department of the Interior, Bureau of Reclamation, 106 pp.) A countervailing hypothesis argues that phytoplankton abundance is governed by the abundance of filter-feeding clams in the northern reach, which historically has varied with outflow. (Nichols, F.H., 1985. Increased Benthic Grazing: An Alternative Explanation for Low Phytoplankton Biomass in Northern San Francisco Bay During the 1976-977 Drought. Estuarine Coastal and Shelf Science, 21:379-388.)

With the invasion of the northern reach by the Asian clam, Potamocorbula amurensis, which is tolerant of fresh water, the northern reach will likely be subjected to high levels of benthic grazing even in normal or wet years, from now on. Thus, we should be able to determine, within a few years at most, whether physical factors or benthic grazing are the cause of low phytoplankton abundance. (Cohen, A.N., 1990. An Introduction to the Ecology of the San Francisco Estuary. San Francisco Estuary Project, see pp. 16-17.) If benthic grazing is the cause, then because of Potamocorbula, we will not be able to improve pelagic energy flows by manipulating flows, the location of the entrapment zone, or the location of X2.

This and other uncertainties suggest the need for an ongoing biological monitoring and research program as recommended by CUWA. The EPA and participating parties should be prepared to modify the standards up or down if so indicated by the monitoring and research results.

B. Salmon Smolt Index

CUWA's analysis of the salmon smolt standard indicates that compliance with the standard would be impossible under some circumstances, regardless of water project actions. EBMUD believes that CUWA's concerns should be carefully considered. We would be interested in working with the EPA to develop a workable standard. EBMUD supports the development of a comprehensive management plan for salmon smolt survival, such as the Lower Mokelumne River Management Plan (LMRMP) that we presented to the State Board.

C. Striped Bass Standard

We strongly agree with CUWA that estuarine standards should not be based on the protection of exotic and invasive species, such as striped bass or other non-native species. Research by Dr. Peter Moyle (Professor of Fisheries Biology, University of California, Davis), Dr. Samuel McGinnis (Professor of Biology, California State University, Hayward), and many others indicates that non-native fish introduced into California waters, including striped bass, are probably a contributing factor and in some cases the primary factor in the decline of native fish species and populations through predation or competition, and may even be responsible for the extinction of some native California fish species.

Instead of establishing a standard to protect invasive species, EPA should research the impacts of water quality in the San Joaquin River on native species, and develop a standard that is

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appropriate for the protection and restoration of native species. EBMUD agrees with CUWA that there are broad ecological reasons for addressing the high salinity levels of the San Joaquin River, and urges EPA to incorporate, in any standard it adopts, an element addressing the agricultural drainage discharges that largely cause the high salinity levels.

II. Implementation Concerns

As indicated above, EBMUD has a strong commitment to protect public trust resources within the Bay and Delta, and we recognize our obligation to contribute our fair share toward the restoration and protection of fish and wildlife populations of the Bay and Delta. However, we believe that our obligation to "share the burden" must be balanced with our obligation as an urban water supplier to provide sufficient quantities of good quality drinking water. We are also concerned that implementation of the standard could have detrimental upstream impacts on the Mokelumne River. In addition, we believe that the allocation of responsibility for achieving Bay-Delta standards must be based on recognition of water users' relative impacts on Delta biological resources.

A. Upstream Tributary Linkages

EBMUD agrees in principle that all water users potentially having an impact on Bay-Delta biological resources should share in reducing and resolving these impacts. However, the apportionment of this responsibility must recognize the linkage between upstream tributaries and the Bay-Delta Estuary. Specifically, implementation must ensure that any ecological benefits of tributary flows to the Delta required by the standard are complementary and consistent with the protection of upstream biological resources.

In recent years, EBMUD has managed its releases of water to the Mokelumne River from Camanche Reservoir to improve instream habitat conditions. Furthermore, EBMUD has made protection of the lower Mokelumne River's natural resources an integral component of its comprehensive Water Supply Management Program (WSMP), adopted by the Board of Directors in October, 1993. EBMUD's proposed LMRMP was submitted into evidence during the SWRCB's November 1992 Mokelumne River hearing, and EBMUD has managed the river substantially in keeping with the LMRMP's findings since that time.

Improving fishery conditions on the Mokelumne River has a positive impact on fishery production goals for the Delta system. During the drought, between 1987 and 1992, the Mokelumne River

Fish Hatchery raised more than 17 million salmon and steelhead, which supplemented the Bay-Delta fishery resources.

Changes in delta hydrology required in the implementation of the proposed standards could adversely affect upstream and downstream migration of salmonids. For example, any increases in springtime releases from Camanche that might be required to comply with the standards above and beyond the flows prescribed in the LMRMP will reduce the lower Mokelumne River's "weighted usable salmon rearing area," the principal indicator of habitat availability and quality. In addition, higher early spring flows can prematurely move salmon fry and smolts into the Delta when they are not physiologically ready to migrate, making them more vulnerable to predation, entrainment, and the effects of less than optimum rearing conditions. (EBMUD testimony presented at the Mokelumne River and D-1630 Hearings before the SWRCB. November 1992 and February 1993.)

Restricting water project pumping operations in the early spring to comply with the estuarine habitat standard would likely result in greater fall pumping. The higher cross-Delta flows of Sacramento River water that would result from such operations may influence or obscure olfactory and hydraulic cues utilized during upstream migration, and result in adult chinook and steelhead straying from the Mokelumne to the Sacramento River. (EBMUD testimony presented at the Mokelumne River Hearing before the SWRCB. November 1992.)

B. Relative Impacts of Diversions

Allocation of responsibility for achieving Bay-Delta standards should be based on each water user's relative impact on Delta biological resources. The Mokelumne River is one of the Delta's tributaries and is the primary source of water supply for EBMUD. Originating in the Sierra Nevada, the Cosumnes, the Mokelumne and the Calaveras Rivers together comprise the Eastside streams in the Bay-Delta watershed. Flows from the Mokelumne River contributed a small portion of inflow to the Delta under natural conditions, and EBMUD's diversion is less than 1% of total Delta unimpaired flow.

It is estimated that there are approximately 1,850 irrigation diversions in the Delta, many of which are unscreened. Effects on migration attributable to the major diversion facilities in the Delta include entrainment and predation losses at the export pumps of the Central Valley Project and the State Water Project. (EBMUD Exhibit No. 27, pp. 4-1 through 4-3, SWRCB Mokelumne River Hearing.)

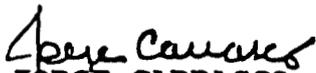
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The potential for such losses increases with operation of the Delta Cross Channel. High flows through the Cross Channel intercept young salmon that are out-migrating from the Mokelumne and move them into the South Delta, where they are vulnerable to the state and federal projects, and increased predation. (EBMUD Exhibit No. 32, pp. 3-50.)

In brief, although upstream diversions may reduce the amount of fresh water inflow to the Delta, their impacts on Delta fishery resources may be small compared to the impacts of in-Delta diversions. While EBMUD's diversions in the Mokelumne may have a small or indirect impact on Delta fisheries, large restrictions on EBMUD diversions for purposes of increasing Delta outflows could have a significant impact on upstream and downstream migration of salmonids in the Mokelumne.

In conclusion, on behalf of EBMUD, I would like to thank EPA for the hard work the Agency has done in developing these proposals. EPA has indicated its willingness to consider modifications in the proposals. EBMUD has been working and will continue to work to try to create as broad a consensus as possible about what those modifications should be. EBMUD hopes that the standards can be finalized expeditiously and that the state will move quickly towards their implementation. Thank you for considering these comments.

Sincerely,


JORGE CARRASCO
General Manager

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